2016-07

CRUSER Technical Continuum 2016

Monterey, California: Naval Postgraduate School

http://hdl.handle.net/10945/49844

CRUSER Events

CRUSER sponsors several events in support of our yearly innovation thread.

2016_09 Warfare Innovation Workshop

2016_07 CRUSER TechCon

2016_05 CRUSER Expo 2016

2016_04 Robots in the Roses

2016_03 RoboEdu

2015_09 Warfare Innovation Workshop

2015_04 TechCon

2015_04 Robots in the Roses

2015_04 Robo Ethics

2016_07 CRUSER TechCon

Details

Where & When

- **Date:** 12-13 July 2016
- **Time:** 0900-1400 each day - *Schedule of Presentations will be posted here when available*
- **Location:** "The Tent" on The Quad, NPS Ingersoll Plaza
- **Watch Live Streaming of the Event:** http://my.nps.edu/web/video

Contact CRUSER@NPS.EDU

Description

CRUSER's annual NPS TechCon provides NPS Faculty an opportunity to explore selected concepts in support of our Innovation Thread - "Creating Asymmetric Warfighting Advantages." The selected concepts listed

2015_03 Warfare Innovation Workshop

2015_03 CRUSER Colloquium

2015_01 CRUSER Colloquium

2014_09 Warfare Innovation Workshop

2014_05 Mine Warfare Symposium

2014_05 CRUSER Tech Expo

2014_04 TechCon

2014_04 Robots in the Roses

2014_03 RoboEthics

2013_09 Warfare Innovation Workshop

2013_09 RoboEthics

2013_04 TechCon

2013_04 Robots in the Roses

2013_03 Warfare Innovation Workshop

2012_10 Fleet Week

2012_09 Warfare Innovation Workshop

2012_05 TechCon

2012_05 Robots in the Roses

2012_01 RoboEthics

below were generated during the September 2015 Warfare Innovation Workshop. Although the concepts below have been highlighted, presentations may be about any concept related to the Innovation Thread. These 15 minute TechCon presentations are designed to allow faculty to showcase how they might take one of these selected concepts to experimentation.

Drop-in any time between 0900-1400 on Tues-Wed 12-13 July to hear presentations that you are interested in. ***No registration is required.***

TechCon Booklet with presentation abstracts will be downloadable and linked here when available.

Program + Abstracts: [Click Here]

Briefing Schedule (v. 3.0): [Click Here]

TUESDAY 12 JULY

900	905	Dr. Ray Buettner: CRUSER Director	Welcome
905	920	C. Blais: NPS MOVES	Government-Owned Software for Robotics Education and Research
925	940	C. Blais: NPS MOVES	Challenges in Distinguishing Manned from Unmanned Systems in Combat Models
945	1000	R. Gramache: NPS PH	Electric Gun System
1005	1020	E. Gyde: BATTELLE	Interactive 360 Video for Autonomous and Unmanned Platforms
1025	1040	J. Reeder: SSC	Path Integral Control with Evolved Cost Functions for Control of Agile UAV Swarms
1045	1100	K. Song: NPS OC	Prototype Basic MCM UUV Search Mission Management AI Module Integration
1105	1120	D. Brutzman/D. Davis/C. Blais/R. McGhee: NPS MOVES	Ethical Mission Tasking and Execution for Maritime Robotic Vehicles
1125	1140	D. Mortimore: NUWC Keyport	NUWC Division, Keyport Unmanned Systems Research and Experimentation Opportunities
1145	1200	H. Park/Tavora Romano/Yun:NPS MAE/ECE	Project MANICOPTER: Autonomous Aerial Vehicles with Robotic Manipulation Capability
1205	1220	J. Virgili-Llop/M. Romano: NPS MAE	Modeling and control of UxV with onboard robotic manipulators of similar size
1225	1240	K. Jones: NPS MAE	Aqua-Quad: Status and Future Developments
1245	1300	W. Kang: NPS MA	Observability and Optimal Sensor Placement for Mobile Sensor Networks
1305	1320	D. Boger/ S. Miller: NPS IS	Using Co-Active Design to Implement Marine Machine Interdependence in Squad Maneuvers
1325	1340	F. Alves: NPS PH	Bio-inspired MEMS acoustic sensor for robotic autonomous systems applications
1345	1400	S. Fahey: NPS CS	USV for Maritime Shield
1405	1420	S. Kragelund: NPS MAE	Experimentation in Extreme Environments: Recent Results by CAVR

2012_01 CRUSER Lecture

2011_11 CRUSER Lecture

2011_09 Warfare Innovation Workshop

2011_08 CRUSER Lecture

2011_03 Robots in the Roses

WEDNESDAY 13 JULY

900	905	Dr. Brian Bingham: CRUSER Deputy Director	Welcome
905	920	B. Bingham: NPS MAE	Developing Single Sortie Detect to Engage Multi-Vehicle Autonomy with Ground-Based Testbed
925	940	J. Joseph: NPS OC	Acoustic Characterization of the New Arctic using Unmanned Systems in ICEX-16
945	1000	Y. Kwon/J. Klamo: NPS SE/MAE	Unsteady Loads on UUV during Near Surface Operation
1005	1020	P. Thulasiraman: NPS ECE	Evaluation of Security Algorithms in Cyber Defense of UAV Swarm Communications
1025	1040	G. Xie: NPS CS	Reliable Ad-hoc Communication through Multi-path Data Delivery
1045	1100	D. Brutzman: NPS IS/USW	RoboData Archive for JIFX/CRUSER Unmanned System Experimentation
1105	1120	J. Testa/V. Dobrokhodov: NPS MAE	Vision-Based Relative Navigation of Multicopter UAV in Maritime Interdiction Operation
1125	1140	X. Yun/ J. Calusdian: NPS ECE	MATLAB Interface for the P3-DX Mobile Robot
1145	1200	C. Walton/ I. Kaminer: NPS MAE	Optimal Sensor Deployment and Information Gathering using UxSs
1205	1220	J. Metcalf/R.C. Olsen: NPS PH	Photogrammetric Point Cloud Fusion Using UAV Collected Thermal Imagery
1225	1240	R. Buettner/M. Jones: NPS IS	Swarm versus Swarm: Progress and Future Plans
1245	1300	K. Giammarco/M. Auguston/K. Giles: NPS SE/CS	Monterey Phoenix Behavior Modeling of Robotics and Unmanned Systems
1305	1320	P. Guest: NPS MR	Using Quad-rotor UAS to Perform Meteorological Measurements From Ships
1325	1340	S. Sanchez: NPS OR	Closing Capability Gaps: Data Farming Methods for New Concept Exploration in the CRUSER Community
1345	1400	S. Kragelund/ C. Walton/ I. Kaminer: NPS MAE	Sonar Detection Mission Planning Tool for Autonomous Vehicle Teams
1405	1420	D. Brutzman: NPS IS/USW	QR and DFL Optical Communications for Network Optional Warfare (NOW)

Call for Abstracts (CLOSED)

All technical members of the CRUSER community of interest are invited to submit an abstract in any of the following Robotics and Unmanned Systems (RAS) topic areas:

RAS Enabled/Support of: ...

1) Temporal networks: agile ad hoc networks will create an asymmetric advantage in any future A2AD battlespace.

2) Agile communications: standardized communications between diverse assets in a future battlespace will improve outcomes, and should be designed into technologies in development today.

3) Fleet-spoofing and/or MILDEC: using small, expendable unmanned systems and retired assets, these concepts all endeavor to confuse our adversary and cause enemy forces to commit assets and weapons to counter an imaginary fleet.

4) Alternative PNT: robust means for positioning, navigation, and timing (PNT) will be essential in a future battlespace, and could be accomplished using an array of sensors deployed on a variety of diverse assets.

5) Other RAS/Unmanned Systems concepts of interest that did not fit into a stated category leveraged small, expendable unmanned systems or the electromagnetic spectrum to create asymmetric advantages in an A2AD environment such as “Cross-Domain UAVs” and “Bio-Mimicry Comms”.

A full copy of the September 2015 Warfare Innovation Workshop report is available from Lyla Englehorn (laengleh@nps.edu).